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EXAMINER

HOLLIDAY, JAIME MICHELE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/709,789	JIANG, SAM SHIAW-SHIANG	
	Examiner	Art Unit	
	Jaime M. Holliday	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

Applicant's arguments filed October 16, 2007 have been fully considered but they are not persuasive.

Applicant basically argues that Meyer et al. does not teach that the first period of time P1, representing how long the receiver is blocked from outputting another receiving status report to the sender, is not less than the result of the second period of time P2, representing how often a sender can output a RESET PDU to the receiver, multiplied by M, representing a limit on the number of transmission of the reset PDUs. Further, Meyer does not provide any motivation for making the period of the Status Prohibit Timer greater than or equal to the value of the period of Timer_RST multiplied by MaxRST. It would not be obvious for one having ordinary skill in the art to use this value for the Status Prohibit Timer because Meyer, et al. addresses a different problem than the present invention. Meyer et al. does not teach that the timer prevents the sender from outputting a RESET PDU when receiving a status report after a RESET PDU has already been set.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Meyer et al. do not disclose that entire limitation that Applicant argues, because Yi et al. discloses Timer_RST (P2) and retransmissions of the PDUs (M). Although Meyers et al. do not disclose "M" or "P2," it would be obvious that that the Status

Prohibit timer has a value that is a function of the number of PDU transmissions and the time it takes to send the PDU ($ST=x_0/r$).

Applicant further argues that Meyer et al. does not teach that the sender ignores a status report output from the receiver when a reset procedure is ongoing. Further, Meyer et al. does not teach that the second status report is ignored to prevent the sender from outputting a reset PDU when receiving a status report because the reset procedure has been started and is still ongoing.

Examiner respectfully disagrees, because Meyer et al. discloses that the PDU with SN=2 is included in the second status report S_{12} since the receiver has not yet received it and is unaware that a retransmission is already on the way. In reply to the second status report S_{12} with the retransmission request for SN=2 and 4, the RLC transmitter only retransmits the PDU with SN=4. For sequence number SN=2 a check of the memory has the result that the first retransmission prohibit timer RPT1 is running for SN=2 (paragraphs 50-58). If the second status report only has SN=2, it would be inherent that the transmitter would check its memory, recognize that a retransmission of this particular PDU has occurred, and disregard the entire report. Since there is a control for ignoring the second receiving status report, there is a controller that acts to disregard the report with SN=2 (controlling the sender to ignore at least a second receiving status report).

Therefore, in view of the preceding arguments, Examiner maintains previous rejections.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. **Claims 1-3 and 8-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yi et al. (US 2003/0007459 A1)** in view of **Meyer et al. (US 2004/0148546 A1)**.

Consider **claim 1**, Yi et al. clearly show and disclose a method for re-transmitting data or control information in a radio link control layer relates to determining whether re-transmission will be ended by comparing a number of transmission with a critical value when the transmission of data or control information has successively failed, reading on the claimed "A method of controlling a reset procedure for a radio communication link between a sender and a receiver," (abstract). The sender RLC layer receives the state information with which success of transmission can be judged from the receiver and retransmits the RLC PDU, which requires re-transmission. The state information including the information of the lost PDU is loaded in the Status PDU and transmitted by the receiver. The Status PDU can be transmitted from the sender to the receiver. For example, if the serial numbers of the received RLC PDU are #23, #24, #25, #32 and #34, the RLC PDUs having the serial numbers of #26 to #31 and #33 are presumed to be lost. The receiver checks the serial numbers of the received RLC PDU and transmits the status PDU including the information of positive acknowledgement or negative acknowledgement to the sender, thus to support the process of re-transmission of the sender, reading on the claimed "the

receiver transmitting at least a receiving status report to the sender," (paragraphs 24, 25, 27). The sender sends a reset instruction for instructing reset of the radio link control layer to the receiver, when the number of transmission of the MRW instruction is the same as or larger than MaxMRW which is the critical value as sending of the MRW instruction which is control information is successively failed, and the MRW instruction which was sent right before is turned out to have failed, reading on the claimed "the sender receiving at least one receiving status report sent from the receiver, determining that the receiving status report contains protocol error, transmitting a RESET PDU to the receiver," (paragraph 82). When a positive response about the corresponding RESET PDU is received until the Timer_RST is expired after sending the RESET PDU, the process of re-transmission is terminated. When the positive response about the corresponding RESET PDU is not received, the value of the VT (RST) is increased by 1. The value is then compared with the critical value (MaxRST). When the value of the VT (RST) is smaller than the critical value, the same RESET PDU is re-transmitted to the receiver. If the value of VT (RST) becomes the same as or larger than the critical value, this is reported to the upper layer, reading on the claimed "starting a first timer for clocking a second predetermined period of time, called P2 hereafter; before the number of transmissions of the RESET PDUs reaches a predetermined value, called M hereafter, the sender outputting a RESET PDU to the receiver each time the first timer expires; and when the number of transmissions of the RESET PDUs reaches M and either the first timer

expires or a RESET PDU is triggered to transmit, the sender detecting an unrecoverable protocol error," (paragraph 96).

However, Yi et al. fail to specifically disclose that when the receiver sends a status report, it is blocked from sending another report for a predetermined time.

In the same field of endeavor, Meyer et al. clearly show and disclose a method for the transmission of data packets (0) from a transmitter (TR) to a receiver (RE), defective data packets (0) are detected and a first status message (81) comprising an indication of defective data packets is sent from the receiver (RE) to the transmitter (TR), (abstract). RLC protocol allows the control of the amount of status reports by a Status Prohibit Timer. This timer prohibits the sending of status reports for a certain amount of time, (paragraph 7). The receiver initializes a timing unit according to the time when the first status message is sent and a threshold corresponds to said status message. For example, a first timer or a counter can be started when the status message is forwarded for transmission to an underlying layer in the protocol stack or when the transmission is started by a physical layer, reading on the claimed "blocking the receiver from outputting another receiving status report to the sender for a first predetermined period of time, called P1 hereafter," (paragraph 14). A status message is sent by the receiver every x_0 PDUs, i.e. the timing unit is a packet counter determining the sending of the status messages. The time between two status messages is $ST = x_0/r$, with r being the transmission rate of PDUs. r can for

example be estimated, measured or read from configured parameters, reading on the claimed "wherein P1 in step (b) is not less than the result of P2 multiplied by M," (paragraph 73). The length that the timer runs, which is set by the receiver upon transmission of the status, is directly related to the number (x_0) of PDUs, reading on the claimed "RESET PDUs," sent by the sender. It would then be inherent that the length of Timer_RST would be at least the total PDUs sent multiplied by how often they are sent.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a Timer_Status_Prohibit to be used by a receiver as taught by Meyer et al. in the method of Yi et al., in order to limit the amount of status messages sent during a reset process.

Consider **claim 2**, Yi et al., as modified by Meyer et al., clearly show and disclose the claimed invention **as applied to claim 1 above**, and in addition, Meyer et al. further disclose that the receiver starts a timing unit that is a timer, reading on the claimed "utilizing the receiver to start a second timer for clocking P1 when a receiving status report is outputted from the receiver," (paragraph 21).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have a timer started when the receiver sends a status message as taught by Meyer et al. in the method of Yi et al., in order to limit the amount of status messages sent during a reset process.

Consider **claim 3**, Yi et al., as modified by Meyer et al., clearly show and disclose the claimed invention **as applied to claim 2 above**, and in addition, Yi

et al. further disclose that the sender drives Timer_RST which is a related timer when the RESET PDU is transmitted, reading on the claimed "the first timer is a timer Timer_RST according to a 3GPP specification," (paragraph 41).

However, Yi et al. fail to specifically disclose that the receiver uses a Timer_Status_Prohibit.

In the same field of endeavor, Meyer et al. clearly show and disclose that the RLC protocol allows the control of the amount of status reports by a Status Prohibit Timer. This timer prohibits the sending of status reports for a certain amount of time, reading on the claimed "second timer is a timer Timer_Status_Prohibit," (paragraph 7).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a Timer_Status_Prohibit to be used by a receiver as taught by Meyer et al. in the method of Yi et al., in order to limit the amount of status messages sent during a reset process.

Consider **claim 4**, Yi et al. clearly show and disclose a method for re-transmitting data or control information in a radio link control layer relates to determining whether re-transmission will be ended by comparing a number of transmission with a critical value when the transmission of data or control information has successively failed, reading on the claimed "A method of controlling a reset procedure for a radio communication link between a sender and a receiver," (abstract). The sender RLC layer receives the state information with which success of transmission can be judged from the receiver and

retransmits the RLC PDU, which requires re-transmission. The state information including the information of the lost PDU is loaded in the Status PDU and transmitted by the receiver. The Status PDU can be transmitted from the sender to the receiver. For example, if the serial numbers of the received RLC PDU are #23, #24, #25, #32 and #34, the RLC PDUs having the serial numbers of #26 to #31 and #33 are presumed to be lost. The receiver checks the serial numbers of the received RLC PDU and transmits the status PDU including the information of positive acknowledgement or negative acknowledgement to the sender, thus to support the process of re-transmission of the sender, reading on the claimed "the receiver transmitting at least a receiving status report to the sender," (paragraphs 24, 25, 27). The sender sends a reset instruction for instructing reset of the radio link control layer to the receiver, when the number of transmission of the MRW instruction is the same as or larger than MaxMRW which is the critical value as sending of the MRW instruction which is control information is successively failed, and the MRW instruction which was sent right before is turned out to have failed, reading on the claimed "the sender receiving at least one receiving status report sent from the receiver, determining that the receiving status report contains protocol error, activating a reset procedure, and transmitting a RESET PDU to the receiver, and recognizing the reset procedure as ongoing before the sender receives a RESET ACK PDU outputted from the receiver," (paragraph 82).

However, Yi et al. fail to specifically disclose that the sender ignores further status reports.

In the same field of endeavor, Meyer et al. clearly show and disclose In a method for the transmission of data packets (D) from a transmitter (TR) to a receiver (RE) identification of transmitted data packets are stored. Defective data packets (D) are detected by the receiver (RE), status messages (S) which request defective data packets for retransmission are sent from the receiver (RE) to the transmitter (TR) and retransmissions of requested data packets are performed according to the status messages (S), (abstract). Messages are sent between the RLC entities of the RLC transmitter TR and the RLC receiver RE. The RLC transmitter TR sends 3 PDUs with sequence numbers SN=1, 2 and 3. The PDU with SN=2 is lost, e.g. due to a disturbance during radio transmission, and does not reach the RLC receiver. By receiving the PDU with SN=3 the RLC receiver can detect the loss of the PDU with sequence number 2 if a transmission in the order of increasing sequence numbers is performed. The loss triggers a transmission of a first status report or status message S_{11} , which requests a retransmission of the PDU with SN=2. In the first status report S_{11} , the sequence number 3 is acknowledged (ACK=3) while sequence number 2 is reported as missing (NACK=2). At the same time, the RLC transmitter continues sending PDUs with SN=4, 5 and 6, of which the PDU with SN=4 is again lost during radio transmission. Upon receiving the first status report S_{11} , the RLC transmitter retransmits the PDU with SN=2. The transmitter TR stores in a

memory that sequence number SN=2 corresponds to a retransmission prohibit timer RPT1. When receiving the PDU with SN=5, the RLC receiver detects that the PDU with SN=4 is also lost and transmits a second status report S_{12} which requests a retransmission both of the PDU with SN=2 and SN=4 by including the information (NACK: 2, 4) while the reception of the PDU with sequence number 5 is acknowledged (ACK=5). The PDU with SN=2 is included in the second status report S_{12} since the receiver has not yet received it and is unaware that a retransmission is already on the way. In reply to the second status report S_{12} with the retransmission request for SN=2 and 4, the RLC transmitter only retransmits the PDU with SN=4. For sequence number SN=2 a check of the memory has the result that the first retransmission prohibit timer RPT1 is running for SN=2. The expiry threshold for this timer is not yet reached. Therefore, the PDU with SN=2 is not selected for retransmission. The poll bit is set in the retransmitted PDU with SN=4. The RLC transmitter starts a further retransmission prohibit timer RPT2 for SN=4, stores the correspondence between the timer and the PDU, reading on the claimed "controlling the sender to ignore at least a second receiving status report outputted from the receiver when the reset procedure is ongoing, wherein the second receiving status report is received later than the first receiving status report," (paragraphs 50-58). If the second status report only has SN=2, it would be inherent that the transmitter would check its memory, recognize that a retransmission of this particular PDU has occurred, and disregard the entire report.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to allow a transmitter to ignore a status report with a NACK for a PDU that has already been retransmitted as taught by Meyer et al. in the method of Yi et al., in order to limit the delays due to retransmission.

Consider **claim 5**, Yi et al., as modified by Meyer et al., clearly show and disclose the claimed invention **as applied to claim 4 above**, and in addition, Yi et al. further disclose that the sender sends a reset instruction for instructing reset of the radio link control layer to the receiver, when the number of transmission of the MRW instruction is the same as or larger than MaxMRW which is the critical value as sending of the MRW instruction which is control information is successively failed, and the MRW instruction which was sent right before is turned out to have failed, reading on the claimed "the sender receiving at least one receiving status report sent from the receiver, determining that the receiving status report contains protocol error, transmitting a RESET PDU to the receiver," (paragraph 82). When a positive response about the corresponding RESET PDU is received until the Timer_RST is expired after sending the RESET PDU, the process of re-transmission is terminated. When the positive response about the corresponding RESET PDU is not received, the value of the VT (RST) is increased by 1. The value is then compared with the critical value (MaxRST). When the value of the VT (RST) is smaller than the critical value, the same RESET PDU is re-transmitted to the receiver. If the value of VT (RST) becomes

the same as or larger than the critical value, this is reported to the upper layer, reading on the claimed "further comprises utilizing the sender to periodically output a RESET PDU to the receiver according to a predetermined period of time before the number of transmissions of the RESET PDUs reaches a predetermined value and before the sender receives the RESET ACK PDU outputted from the receiver," (paragraph 96).

Consider **claim 6**, Yi et al., as modified by Meyer et al., clearly show and disclose the claimed invention **as applied to claim 5 above**, and in addition, Yi et al. further disclose that the sender drives Timer_RST which is a related timer when the RESET PDU is transmitted, reading on the claimed "comprises utilizing the sender to start a timer for clocking the predetermined period of time when the sender outputs a RESET PDU," (paragraph 41).

Consider **claim 7**, Yi et al., as modified by Meyer et al., clearly show and disclose the claimed invention **as applied to claim 6 above**, and in addition, Yi et al. further disclose that the sender drives a Timer_RST, reading on the claimed "timer is a timer Timer_RST according to a 3GPP specification," (paragraph 41).

Consider **claim 8**, Yi et al. clearly show and disclose a method for re-transmitting data or control information in a radio link control layer relates to determining whether re-transmission will be ended by comparing a number of transmission with a critical value when the transmission of data or control information has successively failed, (abstract). The sender RLC layer receives

the state information with which success of transmission can be judged from the receiver and retransmits the RLC PDU, which requires re-transmission. The state information including the information of the lost PDU is loaded in the Status PDU and transmitted by the receiver. The Status PDU can be transmitted from the sender to the receiver. For example, if the serial numbers of the received RLC PDU are #23, #24, #25, #32 and #34, the RLC PDUs having the serial numbers of #26 to #31 and #33 are presumed to be lost. The receiver checks the serial numbers of the received RLC PDU and transmits the status PDU including the information of positive acknowledgement or negative acknowledgement to the sender, thus to support the process of re-transmission of the sender, (paragraphs 24, 25, 27). The sender sends a reset instruction for instructing reset of the radio link control layer to the receiver, when the number of transmission of the MRW instruction is the same as or larger than MaxMRW which is the critical value as sending of the MRW instruction which is control information is successively failed, and the MRW instruction which was sent right before is turned out to have failed, (paragraph 82). When a positive response about the corresponding RESET PDU is received until the Timer_RST is expired after sending the RESET PDU, the process of re-transmission is terminated. When the positive response about the corresponding RESET PDU is not received, the value of the VT (RST) is increased by 1. The value is then compared with the critical value (MaxRST). When the value of the VT (RST) is smaller than the critical value, the same RESET PDU is re-transmitted to the

receiver. If the value of VT (RST) becomes the same as or larger than the critical value, this is reported to the upper layer, reading on the claimed "A receiver in wireless communication with a sender for transmitting at least a receiving status report, wherein the sender receives at least the receiving status report, transmits a RESET PDU to the receiver and starts a first timer for clocking a first predetermined period of time, called P1 hereafter, when determining that the receiving status report contains protocol error, stores a predetermined value, called M hereafter and counts the number of transmissions of the RESET PDUs, wherein before the number of transmissions of the RESET PDUs reaches M, the sender outputs a RESET PDU to the receiver each time the first timer expires, and the sender detects an unrecoverable protocol error when the number of transmissions of the RESET PDUs reaches M and either the first timer expires or a RESET PDU is triggered to transmit," (paragraph 96).

However, Yi et al. fail to specifically disclose that when the receiver sends a status report, it is blocked from sending another report for a predetermined time.

In the same field of endeavor,,Meyer et al. clearly show and disclose a method for the transmission of data packets (0) from a transmitter (TR) to a receiver (RE), defective data packets (0) are detected and a first status message (81) comprising an indication of defective data packets is sent from the receiver (RE) to the transmitter (TR), (abstract). RLC protocol allows the control of the amount of status reports by a Status Prohibit Timer. This timer prohibits the

sending of status reports for a certain amount of time, (paragraph 7). The receiver initializes a timing unit according to the time when the first status message is sent and a threshold corresponds to said status message. For example, a first timer or a counter can be started when the status message is forwarded for transmission to an underlying layer in the protocol stack or when the transmission is started by a physical layer, reading on the claimed "the receiver comprising: a communication interface for blocking the receiver from outputting another receiving status report for a second predetermined period of time, called P2 hereafter," (paragraph 14). A status message is sent by the receiver every x_0 PDUs, i.e. the timing unit is a packet counter determining the sending of the status messages. The time between two status messages is $ST = x_0/r$, with r being the transmission rate of PDUs. r can for example be estimated, measured or read from configured parameters, reading on the claimed "wherein P2 is not less than the result of P1 multiplied by M," (paragraph 73). The length that the timer runs, which is set by the receiver upon transmission of the status, is directly related to the number (x_0) of PDUs, reading on the claimed "RESET PDUs," sent by the sender. It would then be inherent that the length of Timer_RST would be at least the total PDUs sent multiplied by how often they are sent.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a Timer_Status_Prohibit to be

used by a receiver as taught by Meyer et al. in the method of Yi et al., in order to limit the amount of status messages sent during a reset process.

Consider **claim 9**, Yi et al., as modified by Meyer et al., clearly show and disclose the claimed invention **as applied to claim 8 above**, and in addition, Meyer et al. further disclose that the receiver starts a timing unit that is a timer, reading on the claimed "second timer electrically connected to the communication interface for clocking P2, and the communication interface starts the second timer when outputting a receiving status report," (paragraph 21).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to start a timer when the receiver sends a status message as taught by Meyer et al. in the method of Yi et al., in order to limit the amount of status messages sent during a reset process.

Consider **claim 10**, Yi et al., as modified by Meyer et al., clearly show and disclose the claimed invention **as applied to claim 8 above**, and in addition, Yi et al. further disclose that the sender drives Timer_RST which is a related timer when the RESET PDU is transmitted, reading on the claimed "the first timer is a timer Timer_RST according to a 3GPP specification," (paragraph 41).

However, Yi et al. fail to specifically disclose that the receiver uses a Timer_Status_Prohibit.

In the same field of endeavor, Meyer et al. clearly show and disclose that the RLC protocol allows the control of the amount of status reports by a Status Prohibit Timer. This timer prohibits the sending of status reports for a certain

amount of time, reading on the claimed "second timer is a timer
Timer_Status_Prohibit," (paragraph 7).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a Timer_Status_Prohibit to be used by a receiver as taught by Meyer et al. in the method of Yi et al., in order to limit the amount of status messages sent during a reset process.

Consider **claim 11**, Yi et al. clearly show and disclose a method for re-transmitting data or control information in a radio link control layer relates to determining whether re-transmission will be ended by comparing a number of transmission with a critical value when the transmission of data or control information has successively failed, (abstract). The sender RLC layer receives the state information with which success of transmission can be judged from the receiver and retransmits the RLC PDU, which requires re-transmission. The state information including the information of the lost PDU is loaded in the Status PDU and transmitted by the receiver. The Status PDU can be transmitted from the sender to the receiver. For example, if the serial numbers of the received RLC PDU are #23, #24, #25, #32 and #34, the RLC PDUs having the serial numbers of #26 to #31 and #33 are presumed to be lost. The receiver checks the serial numbers of the received RLC PDU and transmits the status PDU including the information of positive acknowledgement or negative acknowledgement to the sender, thus to support the process of re-transmission of the sender, (paragraphs 24, 25, 27). The sender sends a reset instruction for

instructing reset of the radio link control layer to the receiver, when the number of transmission of the MRW instruction is the same as or larger than MaxMRW which is the critical value as sending of the MRW instruction which is control information is successively failed, and the MRW instruction which was sent right before is turned out to have failed, reading on the claimed "A sender in wireless communication with a receiver for receiving at least a first receiving status report sent from the receiver, the sender comprising: a communication interface for activating a reset procedure and transmitting a RESET PDU to the receiver when determining that the first receiving status report contains protocol error; and a decision logic electrically connected to the communication interface for recognizing the reset procedure as ongoing before the communication interface receives a RESET ACK PDU outputted from the receiver," (paragraph 82).

However, Yi et al. fail to specifically disclose that the sender ignores further status reports.

In the same field of endeavor, Meyer et al. clearly show and disclose In a method for the transmission of data packets (D) from a transmitter (TR) to a receiver (RE) identification of transmitted data packets are stored. Defective data packets (D) are detected by the receiver (RE), status messages (S) which request defective data packets for retransmission are sent from the receiver (RE) to the transmitter (TR) and retransmissions of requested data packets are performed according to the status messages (S), (abstract). Messages are sent between the RLC entities of the RLC transmitter TR and the RLC receiver RE.

The RLC transmitter TR sends 3 PDUs with sequence numbers SN=1, 2 and 3. The PDU with SN=2 is lost, e.g. due to a disturbance during radio transmission, and does not reach the RLC receiver. By receiving the PDU with SN=3 the RLC receiver can detect the loss of the PDU with sequence number 2 if a transmission in the order of increasing sequence numbers is performed. The loss triggers a transmission of a first status report or status message S_{11} , which requests a retransmission of the PDU with SN=2. In the first status report S_{11} , the sequence number 3 is acknowledged (ACK=3) while sequence number 2 is reported as missing (NACK=2). At the same time, the RLC transmitter continues sending PDUs with SN=4, 5 and 6, of which the PDU with SN=4 is again lost during radio transmission. Upon receiving the first status report S_{11} , the RLC transmitter retransmits the PDU with SN=2. The transmitter TR stores in a memory that sequence number SN=2 corresponds to a retransmission prohibit timer RPT1. When receiving the PDU with SN=5, the RLC receiver detects that the PDU with SN=4 is also lost and transmits a second status report S_{12} which requests a retransmission both of the PDU with SN=2 and SN=4 by including the information (NACK: 2, 4) while the reception of the PDU with sequence number 5 is acknowledged (ACK=5). The PDU with SN=2 is included in the second status report S_{12} since the receiver has not yet received it and is unaware that a retransmission is already on the way. In reply to the second status report S_{12} with the retransmission request for SN=2 and 4, the RLC transmitter only retransmits the PDU with SN=4. For sequence number SN=2 a check of the

memory has the result that the first retransmission prohibit timer RPT1 is running for SN=2. The expiry threshold for this timer is not yet reached. Therefore, the PDU with SN=2 is not selected for retransmission. The poll bit is set in the retransmitted PDU with SN=4. The RLC transmitter starts a further retransmission prohibit timer RPT2 for SN=4, stores the correspondence between the timer and the PDU, reading on the claimed "wherein the decision logic controls the communication interface to ignore at least a second receiving status report outputted from the receiver when the reset procedure is ongoing; wherein the second receiving status report is received later than the first receiving status report," (paragraphs 50-58). If the second status report only has SN=2, it would be inherent that the transmitter would check its memory, recognize that a retransmission of this particular PDU has occurred, and disregard the entire report.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to allow a transmitter to ignore a status report with a NACK for a PDU that has already been retransmitted as taught by Meyer et al. in the method of Yi et al., in order to limit the delays due to retransmission.

Consider **claim 12**, Yi et al., as modified by Meyer et al., clearly show and disclose the claimed invention **as applied to claim 11 above**, and in addition, Yi et al. further disclose that the sender sends a reset instruction for instructing reset of the radio link control layer to the receiver, when the number of

transmission of the MRW instruction is the same as or larger than MaxMRW which is the critical value as sending of the MRW instruction which is control information is successively failed, and the MRW instruction which was sent right before is turned out to have failed, reading on the claimed "the sender receiving at least one receiving status report sent from the receiver, determining that the receiving status report contains protocol error, transmitting a RESET PDU to the receiver," (paragraph 82). When a positive response about the corresponding RESET PDU is received until the Timer_RST is expired after sending the RESET PDU, the process of re-transmission is terminated. When the positive response about the corresponding RESET PDU is not received, the value of the VT (RST) is increased by 1. The value is then compared with the critical value (MaxRST). When the value of the VT (RST) is smaller than the critical value, the same RESET PDU is re-transmitted to the receiver. If the value of VT (RST) becomes the same as or larger than the critical value, this is reported to the upper layer, reading on the claimed "periodically outputting a RESET PDU to the receiver according to a predetermined period of time before the number of transmissions of the RESET PDUs reaches a predetermined value," (paragraph 96).

Consider **claim 13**, Yi et al., as modified by Meyer et al., clearly show and disclose the claimed invention **as applied to claim 12 above**, and in addition, Yi et al. further disclose that the sender drives Timer_RST which is a related timer when the RESET PDU is transmitted, reading on the claimed "timer electrically connected to the communication interface for clocking the predetermined period

of time, wherein the communication interface starts the timer when outputting a RESET PDU," (paragraph 41).

Consider **claim 14**, Yi et al., as modified by Meyer et al., clearly show and disclose the claimed invention **as applied to claim 13 above**, and in addition, Yi et al. further disclose that the sender drives a Timer_RST, reading on the claimed "timer is a timer Timer_RST according to a 3GPP specification," (paragraph 41).

Conclusion

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaime M. Holliday whose telephone number is (571)

Application/Control Number:
10/709,789
Art Unit: 2617


Page 24

272-8618. The examiner can normally be reached on Monday through Friday 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jaime Holliday
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